

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2004-19961; Directorate Identifier 2004-CE-48-AD; Amendment 39-14839; AD 2006-24-10]

RIN 2120-AA64

Airworthiness Directives; Air Tractor, Inc. Models AT-501, AT-502, AT-502A, AT-502B, and AT-503A Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain Air Tractor, Inc. Models AT-501, AT-502, AT-502A, AT-502B, and AT-503A airplanes, which supersedes AD 2002-26-05 and AD 2002-11-05 R1. Since we issued AD 2002-26-05 and AD 2002-11-05 R1, we determined that additional airplanes should be added to the applicability section and determined the safe life for new production airplanes and replacement spar caps should be extended. We also developed an alternative method of compliance (AMOC) to the requirements of this AD. This AD retains the actions required in AD 2002-26-05 and AD 2002-11-05 R1, adds additional airplanes to the Applicability section, extends the safe life for new production airplanes and replacement spar caps, and incorporates an AMOC. We are issuing this AD to prevent fatigue cracks from occurring in the wing lower spar cap before the established safe life is reached. Fatigue cracks in the wing lower spar cap could result in failure of the spar cap and lead to wing separation.

DATES: This AD becomes effective on January 8, 2007.

As of January 8, 2007, the Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulation.

ADDRESSES: For service information identified in this AD, contact Air Tractor, Incorporated, P.O. Box 485, Olney, Texas 76374; or Marburger Enterprises, Inc., 1227 Hillcourt, Williston, North Dakota 58801; telephone: (800) 893-1420 or (701) 774-0230; facsimile: (701) 572-2602.

To view the AD docket, go to the Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-001 or on the Internet at <http://dms.dot.gov>. The docket number is FAA-2004-19961; Directorate Identifier 2004-CE-48AD.

FOR FURTHER INFORMATION CONTACT: Direct all questions to:

- For the airplanes that do not incorporate and never have incorporated Marburger Enterprises, Inc. winglets: Rob Romero, Aerospace Engineer, FAA, Fort Worth Airplane Certification Office, 2601 Meacham Boulevard, Fort Worth, Texas 76193-0150; telephone: (817) 222-5102; facsimile: (817) 222-5960; e-mail: robert.a.romero@faa.gov; and
- For airplanes that incorporate or have incorporated Marburger Enterprises, Inc. winglets: John Cecil, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, 3960 Paramount Boulevard, Lakewood, California 90712; telephone: (562) 627-5228; facsimile: (562) 627-5210.

SUPPLEMENTARY INFORMATION:

Discussion

On August 3, 2006, we issued a proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that would apply to certain Air Tractor, Inc. Models AT-501, AT-502, AT-502A, AT-502B, and AT-503A airplanes. This proposal was published in the Federal Register as a notice of proposed rulemaking (NPRM) on August 9, 2006 (71 FR 45457). The NPRM proposed to supersede AD 2002-26-05 and AD 2002-11-05 R1 with a new AD that would:

- retain the actions required in AD 2002-26-05 and AD 2002-11-05 R1;
- add additional airplanes to the Applicability section;
- incorporate an alternative method of compliance (AMOC) to the requirements of this AD; and
- extend the safe life for new production airplanes and replacement spar caps.

The table below summarizes the effects this AD will have on the airplane models affected by this AD:

Model	Proposed Action
AT-501	<ul style="list-style-type: none">• Supersede AD 2002-11-05 R1.• Retain the safe lives from AD 2002-11-05 R1.• Provide an AMOC that allows extension of the safe life through an inspection and modification program.
AT-502	<ul style="list-style-type: none">• Supersede AD 2002-26-05.• Retain the safe lives from AD 2002-26-05 and add S/Ns to applicability. AD 2002-26-05 provided safe lives for S/Ns 0003 through 0236. Proposed action applies the same safe life to all S/Ns beginning with 0003.• Provide an AMOC that allows extension of the safe life through an inspection and modification program.
AT-502A	<ul style="list-style-type: none">• Supersede AD 2002-26-05.• Retain the safe lives from AD 2002-26-05.• Provide an AMOC that allows extension of the safe life through an inspection and modification program.

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- AT-502B
- Supersede AD 2002-26-05.
 - Retain the safe lives from AD 2002-26-05 for S/Ns 0187 through 0654, except 0643.
 - Increase the safe lives beyond those listed in AD 2002-26-05 for S/Ns 0655 and greater, as well as S/N 0643.
 - Add requirement to cold work outboard wing center splice block bolt holes in the lower spar cap on S/Ns 0643 and 0655 through 0692.
 - Provide an AMOC that allows extension of the safe life through an inspection and modification program for S/Ns 187 through 654, except 643.
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- AT-503A
- Supersede AD 2002-26-05.
 - Retain the safe lives from AD 2002-26-05.
 - Provide an AMOC that allows extension of the safe life through an inspection and modification program.
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Comments

We provided the public the opportunity to participate in developing this AD. We received no comments on the proposal or on the determination of the cost to the public.

Conclusion

We have carefully reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed except for minor editorial corrections. We have determined that these minor corrections:

- are consistent with the intent that was proposed in the NPRM for correcting the unsafe condition; and
- do not add any additional burden upon the public than was already proposed in the NPRM.

Costs of Compliance

We estimate that this AD affects 500 airplanes in the U.S. registry.

We estimate the following costs to do each inspection:

Labor Cost	Parts Cost	Total Cost Per Airplane	Total Cost on U.S. Operators
8 work-hours X \$80 per hour = \$640	No parts required for inspection	\$640	\$640 X 500 = \$320,000

We estimate the following costs to do the modification:

Labor Cost	Parts Cost	Total Cost Per Airplane	Total Cost on U.S. Operators
120 work-hours X \$80 per hour = \$9,600	Approximately \$3,700	\$9,600 + \$3,700 = \$13,300	\$13,300 X 500 = \$6,650,000

We estimate the following costs to do the replacement:

Labor Cost	Parts Cost	Total Cost Per Airplane	Total Cost on U.S. Operators
254 work-hours X \$80 per hour = \$20,320	Approximately \$16,500	\$20,320 + \$16,500 = \$36,820	\$36,820 X 500 = \$18,410,000

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this AD.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
3. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD (and other information as included in the Regulatory Evaluation) and placed it in the AD Docket. You may get a copy of this summary by sending a request to us at the address listed under ADDRESSES. Include "Docket No. FAA-2004-19961; Directorate Identifier 2004-CE-48-AD" in your request.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. FAA amends § 39.13 by removing Airworthiness Directive (AD) 2002-26-05, Amendment 39-12991 (68 FR 18, January 2, 2003) and AD 2002-11-05 R1, Amendment 39-14564 (71 FR 19628, April 17, 2006), and by adding a new AD to read as follows:



FAA

Aircraft Certification Service

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/

www.gpoaccess.gov/fr/advanced.html

2006-24-10 Air Tractor, Inc.: Amendment 39-14839; Docket No. FAA-2004-19961; Directorate Identifier 2004-CE-48-AD.

Effective Date

(a) This AD becomes effective on January 8, 2007.

Affected ADs

(b) This AD supersedes AD 2002-26-05, Amendment 39-12991, and AD 2002-11-05 R1, Amendment 39-14564.

Applicability

(c) This AD applies to certain Models AT-501, AT-502, AT-502A, AT-502B, and AT-503A airplanes. Use Table 1 in paragraph (c)(1) of this AD for airplanes that do not incorporate and never have incorporated Marburger Enterprises, Inc. (Marburger) winglets. Use Table 2 in paragraph (c)(4) of this AD for certain AT-500 series airplanes that incorporate or have incorporated Marburger winglets.

(1) The following table applies to airplanes (certificated in any category) that do not incorporate and never have incorporated Marburger winglets along with the safe life (presented in hours time-in-service (TIS)) of the wing lower spar cap for all affected airplane models and serial numbers:

Table 1.—Safe Life for Airplanes that do not Incorporate and Never Have Incorporated Marburger Winglets

Model	Serial Numbers	Wing Lower Spar Cap Safe Life
AT-501	0002 through 0061	4,531 hours TIS
AT-501	All serial numbers beginning with 0062	7,693 hours TIS
AT-502	All serial numbers beginning with 0003	1,650 hours TIS
AT-502A	All serial numbers beginning with 0158	1,650 hours TIS
AT-502B	0187 through 0654, except 0643	1,650 hours TIS
AT-502B	0643, and 0655 through 0692	9,000 hours TIS
AT-502B	0693 through 0701	9,500 hours TIS
AT-502B	All serial numbers beginning with 0702	9,800 hours TIS
AT-503A	All serial numbers beginning with 0067	1,650 hours TIS

(2) If piston-powered airplanes have been converted to turbine power, you must use the limits for the corresponding serial number (S/N) turbine-powered airplanes.

(3) Airplanes that have been modified to install lower spar caps, part numbers (P/N) 21058-1 and 21058-2, should use a safe life of 9,800 hours TIS.

(4) The following table applies to airplanes (certificated in any category) that incorporate or have incorporated Marburger winglets. These winglets are installed following Supplemental Type Certificate (STC) SA00490LA. Use the winglet usage factor in Table 2 of this paragraph, the safe life specified in Table 1 in paragraph (c)(1) of this AD, and the instructions included in Appendix 1 to this AD to determine the new safe life of airplanes that incorporate or have incorporated Marburger winglets:

Table 2.—Winglet Usage Factor to Determine the Safe Life for Airplanes that Incorporate or have Incorporated Marburger Winglets Installed Following STC SA00490LA

Model	Serial Numbers	Winglet Usage Factor
AT-501	0002 through 0061	1.6
AT-501	All serial numbers beginning with 0062	1.6
AT-502	0003 through 0236	1.6
AT-502A	0158 through 0238	1.6
AT-502A	All serial numbers beginning with 0239	1.2
AT-502B	All serial numbers beginning with 0187	1.2

(5) Model AT-502B airplanes, S/N 0643, all S/Ns beginning with 0655, and all other airplanes that have been modified with replacement spar caps, P/N 21058-1 and P/N 21058-2, are not eligible to have STC SA00490LA installed without additional fatigue data being provided to the FAA at the address in paragraph (f) of this AD.

Unsafe Condition

(d) This AD is the result of service reports and analysis done on wing lower spar caps of Air Tractor, Inc. airplanes. The actions specified by this AD are intended to prevent fatigue cracks from occurring in the wing lower spar cap before the established safe life is reached. Fatigue cracks in the wing lower spar cap, if not detected and corrected, could result in failure of the spar cap and lead to wing separation and loss of control of the airplane.

Compliance

(e) To address this problem, you must do the following:

Actions	Compliance	Procedures
<p>(1) <i>For all affected airplanes:</i> Modify the applicable airplane records (logbook) as follows to show the reduced safe life for the wing lower spar cap (use the information from Table 1 in paragraph (c)(1), Table 2 in paragraph (c)(4), and Appendix 1 of this AD, as applicable):</p> <p>(i) Incorporate the following into the airplane logbook "In accordance with AD 2006-24-10 (AD 2002-26-05 or AD 2002-11-05, as applicable) the wing lower spar cap is life limited to ____." Insert the applicable safe life number from the applicable tables in paragraphs (c)(1) and (c)(4) of this AD and Appendix 1 of this AD.</p> <p>(ii) If, as of the time of the logbook entry requirement of paragraph (e)(1)(i) of this AD, your airplane is over or within 50 hours of the safe life, an additional 50 hours TIS after the effective date of this AD is allowed to do the replacement.</p>	<p><i>For airplanes previously affected by AD 2002-26-05:</i> Do the logbook entry within the next 10 hours TIS after January 15, 2003 (the effective date of AD 2002-26-05).</p> <p><i>For airplanes not previously affected by AD 2002-26-05:</i> Do the logbook entry within the next 10 hours TIS after January 8, 2007 (the effective date of this AD), unless already done. The logbook language for AT-501 airplanes is referenced as AD 2002-11-05 instead of AD 2002-11-05 R1 to maintain continuity and assures no further action is necessary.</p>	<p><i>Airplane Records Modification:</i> The owner/operator holding at least a private pilot certificate as authorized by section 43.7 of the Federal Aviation Regulations (14 CFR 43.7) may modify the airplane records as specified in paragraph (e)(1) of this AD. Make an entry into the airplane records showing compliance with this portion of the AD in accordance with section 43.9 of the Federal Aviation Regulations (14 CFR 43.9).</p> <p><i>Spar Cap Replacement:</i> Do the replacement when the safe life is reached following Snow Engineering Drawing Number 21050, Snow Engineering Service Letters #197 or #205, both revised March 26, 2001, as applicable. The owner/operator may not do the spar cap modification/replacement, unless he/she holds the proper mechanic authorization.</p>
<p>(2) To extend the safe life of the wing lower spar cap for certain airplanes, you may eddy-current inspect and modify the wing lower spar cap. The inspection schedule, modification procedures, and list of eligible airplanes are included in Appendix 2 to this AD.</p>	<p>Inspection schedule included as part of the alternative method of compliance (AMOC) in Appendix 2 to this AD.</p>	<p>Procedures included as part of the AMOC in Appendix 2 to this AD.</p>
<p>(3) <i>For all affected airplanes:</i> Report to the FAA any cracks detected as the result of each inspection required by paragraph (e)(2) of this AD on the form in Figure 1 of this AD. The Office of Management and Budget (OMB) approved the information collection requirements contained in this regulation under the provisions of the Paperwork Reduction Act and assigned OMB Control Number 2120-0056.</p>	<p>Only if cracks are found, send the report within 10 days after the inspection required in paragraph (e)(2) of this AD.</p>	<p>Send the form (Figure 1 of this AD) to FAA, Fort Worth Airplane Certification Office, Attn: Rob Romero, 2601 Meacham Boulevard, Fort Worth, Texas 76193-0150; telephone: (817) 222-5102; facsimile: (817) 222-5960.</p>

(4) <i>For Model AT-502B airplanes, S/Ns 502B-0643 and 502B-0655 through 502B-0692:</i> cold work the left-hand and right-hand two outboard wing center splice block bolt holes (4 total) in the lower spar cap.	Before accumulating 2,000 hours TIS or within the next 100 hours TIS after January 8, 2007 (the effective date of this AD), whichever occurs later.	Following Snow Engineering Service Letter #244, dated April 25, 2005.
(5) <i>For all affected airplanes:</i> Airplanes that have the two-part modification done following the applicable service bulletins (Snow Engineering Service Letters #197 or #205, both revised March 26, 2001; or Snow Engineering Service Letter #244, dated April 25, 2005), but have over-sized outboard bolt holes at the splice block, must obtain an AMOC from FAA as specified in paragraph (f) of this AD to determine applicable inspection intervals.	Not applicable.	Not applicable.

DOCKET NO. FAA-2004-19961 INSPECTION REPORT <i>(REPORT <u>ONLY</u> IF CRACKS ARE FOUND)</i>	
1. Inspection Performed By:	2. Phone:
3. Airplane Model:	4. Airplane Serial Number:
5. Engine Model Number:	6. Airplane Total Hours TIS:
7. Wing Total Hours TIS:	8. Lower Spar Cap Hours TIS:
9. Has the lower spar cap been inspected before? (eddy-current, dye penetrant, magnetic particle, ultrasound) <input type="checkbox"/> Yes <input type="checkbox"/> No	9a. If yes, Date: _____ Inspection Method: _____ Lower Spar Cap Hours TIS: _____ Cracks found? <input type="checkbox"/> Yes <input type="checkbox"/> No
10. Has there been any major repair or alteration performed to the spar cap? <input type="checkbox"/> Yes <input type="checkbox"/> No	10a. If yes, specify (Description and Hours TIS)
11. Date of AD inspection: _____	
12. Inspection Results: (Note: Report <u>only</u> if cracks are found)	12a. <input type="checkbox"/> Left Hand <input type="checkbox"/> Right Hand
12b. Crack Length: _____	12c. Does drilling hole to next larger size remove all traces of the crack(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No
12d. Corrective Action Taken:	

Mail report to: Rob Romero, Fort Worth ACO, ASW-150, 2601 Meacham Blvd., Fort Worth, TX 76193-0150; or fax to (817) 222-5960

Figure 1

Alternative Methods of Compliance (AMOCs)

(f) The Manager, Fort Worth or Los Angeles Airplane Certification Office (ACO), as applicable (see paragraphs (f)(1)(i) and (f)(2)(ii) of this AD below for specific contacts), has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19.

(1) For information on any already approved AMOCs, contact:

(i) For the airplanes that do not incorporate and never have incorporated Marburger Enterprises, Inc. winglets: Rob Romero, Aerospace Engineer, FAA, Fort Worth ACO, 2601 Meacham Boulevard,

Fort Worth, Texas 76193-0150; telephone: (817) 222-5102; facsimile: (817) 222-5960; e-mail: robert.a.romero@faa.gov.

(ii) For airplanes that incorporate or have incorporated Marburger Enterprises, Inc. winglets: John Cecil, Aerospace Engineer, Los Angeles ACO, FAA, 3960 Paramount Boulevard, Lakewood, California 90712; telephone: (562) 627-5228; facsimile: (562) 627-5210.

(2) AMOCs approved for AD 2001-10-04 and/or AD 2000-14-51 are not considered approved for this AD.

(3) AMOCs approved for AD 2001-10-04 R1, AD 2002-11-03, AD 2002-11-05, AD 2002-11-05 R1, or AD 2002-26-05 are considered approved for this AD.

Special Flight Permit

(g) Under 14 CFR part 39.23, we are limiting the special flight permits for this AD by the following conditions:

- (1) Operate only in day visual flight rules (VFR).
- (2) Ensure that the hopper is empty.
- (3) Limit airspeed to 135 miles per hour (mph) indicated airspeed (IAS).
- (4) Avoid any unnecessary g-forces.
- (5) Avoid areas of turbulence.
- (6) Plan the flight to follow the most direct route.

Material Incorporated by Reference

(h) You must use the service information specified in Table 3 of this AD to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Air Tractor, Incorporated, P.O. Box 485, Olney, Texas 76374.

(3) You may review copies at the FAA, Central Region, Office of the Regional Counsel, 901 Locust, Kansas City, Missouri 64106; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Table 3.—Material Incorporated by Reference

Service Bulletin No.	Page	Revision	Date
Snow Engineering Drawing Number 21050	Sheet 1 and Sheet 3	Not applicable	January 30, 2003
	Sheet 2	Not applicable	February 1, 2003
Snow Engineering Service Letter #197	1 and 2	Not applicable	March 26, 2001
	3	Not applicable	June 13, 2000
Snow Engineering Service Letters #205	1, 2, and 4	Not applicable	March 26, 2001
	3	Not applicable	October 25, 2000
Snow Engineering Service Letter #244	1 through 12	Not applicable	April 25, 2005

Appendix 1 to AD 2006-24-10

The following provides procedures for determining the safe life for those Models AT-501, AT-502, AT-502A, and AT-502B airplanes that incorporate or have incorporated Marburger Enterprises, Inc. (Marburger) winglets. These winglets are installed in accordance with Supplemental Type Certificate (STC) No. SA00490LA.

If you have removed the Marburger winglets before further flight after the effective date of this AD or before the effective date of this AD, do the following:

1. Review your airplane's logbook to determine your airplane's time-in-service (TIS) with winglets installed per Marburger STC No. SA00490LA. This includes all time spent with the winglets currently installed and any previous installations where the winglet was installed and later removed.

Example: A review of your airplane's logbook shows that you have accumulated 350 hours TIS since incorporating the Marburger STC. Further review of the airplane's logbook shows that a previous owner had installed the STC and later removed the winglets after accumulating 150 hours TIS. Therefore, your airplane's TIS with the winglets installed is 500 hours.

If you determine that the winglet STC has never been incorporated on your airplane, then your safe life is presented in Table 1 in paragraph (c)(1) of this AD. Any future winglet installation will be subject to a reduced safe life per these instructions.

2. Determine your airplane's unmodified safe life from Table 1 in paragraph (c)(1) of this AD.

Example: Your airplane is a Model AT-502B, serial number (S/N) 0292. From Table 1 in paragraph (c)(1) of this AD, the unmodified safe-life of your airplane is 1,650 hours TIS.

All examples from hereon will be based on the Model AT-502B, S/N 0292 airplane.

3. Determine the winglet usage factor from Table 2 in paragraph (c)(4) of this AD.

Example: Again, your airplane is a Model AT-502B, S/N 0292. From Table 2 in paragraph (c)(4) of this AD, your winglet usage factor is 1.2.

4. Adjust the winglet TIS to account for the winglet usage factor. Multiply the winglet TIS (result of Step 1 above) by the winglet usage factor (result of Step 3 above).

Example: Winglet TIS is 500 hours X a winglet usage factor of 1.2. The adjusted winglet TIS is 600 hours.

5. Calculate the winglet usage penalty. Subtract the winglet TIS (result of Step 1 above) from the adjusted winglet TIS (result of Step 4 above).

Example:

Adjusted winglet TIS—the winglet TIS = Winglet usage penalty.
(600 hours TIS)–(500 hours TIS) = (100 hours TIS).

6. Adjust the safe life of your airplane to account for winglet usage. Subtract the winglet usage penalty (result of Step 5 above) result from the unmodified safe life from Table 1 in paragraph (c)(1) of this AD (the result of Step 2 above).

Example:

Unmodified safe life–winglet usage penalty = Adjusted safe life.
(1,650 hours TIS)–(100 hours TIS) = (1,550 hours TIS).

7. If you remove the winglets from your airplane before further flight or no longer have the winglets installed on your airplane, the safe life of your airplane is the adjusted safe life (result of Step 6 above). Enter this number in paragraph (e)(1)(i) of this AD and the airplane logbook.

If you have the Marburger winglets installed as of the effective date of this AD and plan to operate your airplane without removing the winglets, do the following:

1. Review your airplane's logbook to determine your airplane's TIS without the winglets installed.

Example: A review of your airplane's logbook shows that you have accumulated 1,500 hours TIS, including 500 hours with the Marburger winglets installed. Therefore, your airplane's TIS without the winglets installed is 1,000 hours.

2. Determine your airplane's unmodified safe life from Table 1 in paragraph (c)(1) of this AD.

Example: Your airplane is a Model AT-502B, S/N 0292. From Table 1 in paragraph (c)(1) of this AD, the unmodified safe life of your airplane is 1,650 hours TIS.

All examples from hereon will be based on the Model AT-502B, S/N 0292 airplane.

3. Determine the winglet usage factor from Table 2 in paragraph (c)(4) of this AD.

Example: Again, your airplane is a Model AT-502B, S/N 0292. From Table 2 in paragraph (c)(4) of this AD, your winglet usage factor is 1.2.

4. Determine the potential winglet TIS. Subtract the TIS without the winglets installed (result of Step 1 above) from the unmodified safe life (result of Step 2 above).

Example:

Unmodified safe life–TIS without winglets = Potential winglet TIS.
(1,650 hours TIS)–(1,000 hours TIS) = (650 hours TIS).

5. Adjust the potential winglet TIS to account for the winglet usage factor. Divide the potential winglet TIS (result of Step 4 above) by the winglet usage factor (result of Step 3 above).

Example:

Potential winglet TIS winglet usage factor = Adjusted potential winglet TIS.
(650 hours TIS) (1.2) = (541 hours TIS).

6. Calculate the winglet usage penalty. Subtract the adjusted potential winglet TIS (result of Step 5 above) from the potential winglet TIS (result of Step 4 above).

Example:

Potential winglet TIS–adjusted potential winglet TIS = Winglet usage penalty.
(650 hours TIS)–(541 hours TIS) = (109 hours TIS).

7. Adjust the safe life of your airplane to account for the winglet installation. Subtract the winglet usage penalty (result of Step 6 above) from the unmodified safe life from Table 1 in paragraph (c)(1) of this AD (the result of Step 2 above).

Example:

Unmodified safe life–winglet usage penalty = Adjusted safe life.
(1,650 hours TIS)–(109 hours TIS) = (1,541 hours TIS).

8. Enter the adjusted safe life (result of Step 7 above) in paragraph (e)(1)(i) of this AD and the airplane logbook.

If you install or remove the Marburger winglets from your airplane in the future, do the following:

If, at anytime in the future, you install or remove the Marburger winglets STC from your airplane, you must repeat the procedures in this Appendix to determine the airplane's safe life.

Appendix 2–Alternative Method of Compliance (AMOC) to AD 2006-24-10; Optional Inspection Program

For all airplanes listed in this AD; except for Model AT-502B airplanes, serial number (S/N) 0643 and all S/Ns beginning with 0655, and those airplanes that have been modified with the replacement spar caps, part number (P/N) 21058-1 and P/N 21058-2; you may begin a repetitive inspection interval program as an alternative to the safe life requirement of this AD with the following provisions:

For the Model AT-501 airplanes affected by this AD, you may elect to follow this AMOC program and continue to operate your airplane up to 8,000 hours TIS, provided you comply with this AMOC in its entirety. If at the time of the effective date of this AD, you are over 1,600 hours TIS (the time required for the first inspection), you must inspect within 50 hours TIS. If at the time of the effective date of this AD, you are over 4,000 hours TIS (the time required for 2-part modification), you must have the modification done within 50 hours TIS. If you choose not to follow this inspection program, then you must replace your lower spar caps and associated hardware at the applicable safe life listed in this AD following the procedures in paragraph (e).

For airplanes that do not and never have had Marburger Enterprise, Inc. winglets installed following Supplemental Type Certificate (STC) SA00490LA:

1. Upon accumulating 1,600 hours time-in-service (TIS) or within the next 50 hours TIS after January 8, 2007 (the effective date of AD 2006-24-10), whichever occurs later, eddy-current inspect the outboard two lower spar cap bolt holes following Snow Engineering Process Specification 197, page 1, revised June 4, 2002; pages 2 through 5, revised May 3, 2002. The inspection must be done by one of the following:

- a. A Level 2 or Level 3 inspector that is certified for eddy-current inspection using the guidelines established by the American Society for Nondestructive Testing or MIL-STD-410; or
- b. A person authorized to do AD work and has completed and passed the Air Tractor, Inc. training course on Eddy Current Inspection on wing lower spar caps.

2. Repeat these inspections at intervals of (as applicable):

- a. 800 hours TIS (all S/Ns except as noted in b); or

b. 600 hours TIS (S/Ns 502B-0187 through 502B-0618 that do not have P/N 20998-1/-2 web plate installed).

c. If the outboard two lower spar cap bolt holes have been cold worked following Snow Engineering Service Letter 233, dated May 18, 2004, then you may double (1,600 hours TIS or 1,200 hours TIS, as applicable) the inspection interval (See Step 8—re: mid cycle cold work).

d. Your logbook entry must include the work done and the inspection intervals that are upcoming, as follows:

"Following AD 2006-24-10, at XXXX {insert hours TIS of the initial pre-modification inspection} hours TIS an eddy-current inspection has been performed. As of now, the safe life listed in the AD no longer applies to this airplane. This airplane must be eddy-current inspected at intervals not to exceed {800/600/1,600/1,200, as applicable} hours TIS. The first of these inspections is due at {insert the total number of hours TIS the first of these inspections is due} hours TIS."

3. If at any time a crack is found, and:

a. The crack indication goes away by doing the modification following the applicable sheet of Snow Engineering Modification—Wing Centersplice—502, Drawing Number 20989, then you may modify your center splice following Snow Engineering Drawing 20989. After modification, proceed to Step 5.

b. The crack indication does not go away by doing the modification following the applicable sheet of Snow Engineering Modification—Wing Centersplice—502, Drawing Number 20989, you must replace all parts and hardware listed in Step 7.

c. Report to the FAA any cracks found using the form in Figure 1 of this AD.

4. For all S/Ns, upon accumulating 4,000 hours TIS, you must:

a. Modify your center splice connection following the applicable sheet of Snow Engineering Modification—Wing Centersplice—502, Drawing Number 20989, unless already done following Snow Engineering Service Letter 197 or 205, both revised March 26, 2001, as applicable. The owners/operator may not do the spar cap modification unless that person holds the proper mechanic authorization. If, as of January 8, 2007 (the effective date of AD 2006-24-10), your airplane is over or within 50 hours of reaching the 4,000 hour TIS modification requirement, do the modification within the next 50 hours TIS.

b. Before doing the modification, do an eddy-current inspection following Snow Engineering Process Specification 197, page 1, revised June 4, 2002; pages 2 through 5, revised May 3, 2002, unless already done following the applicable Snow Engineering Service Letter 197 or 205, both revised March 26, 2001.

c. Your logbook entry must include the work done and the inspection intervals that are upcoming, as follows:

"Following AD 2006-24-10, at XXXX {insert hours TIS of the modification} hours TIS an eddy-current inspection has been done. As of now, the safe life listed in the AD no longer applies to this airplane. This airplane must be eddy-current inspected at {insert the number of hours TIS at modification plus 1,600 hours TIS} hours TIS.

5. For all S/Ns, upon accumulating 1,600 hours TIS after modification, inspect the left-hand and right-hand outboard two lower spar cap bolt holes following Snow Engineering Process Specification 197, page 1, revised June 4, 2002; pages 2 through 5, revised May 3, 2002.

6. Repeat the inspection at intervals of:

a. 800 hours TIS; or

b. 1,600 hours TIS if the outboard two lower spar cap bolt holes have been cold worked following Snow Engineering Service Letter 234, dated May 18, 2004 (See Step 8).

c. Your logbook entry must include the work done and the post-modification inspection intervals that are upcoming, as follows:

"This airplane must be eddy-current inspected at intervals not to exceed {800/1,600, as applicable} hours TIS. The first of these inspections is due at {insert the total number of hours TIS the first of these inspections is due} hours TIS."

d. If a crack is found at any time, before further flight you must replace the lower spar caps, splice blocks, and wing attach angles and hardware. You must also notify the FAA using the form in Figure 1 of this AD.

7. Upon accumulating 8,000 hours TIS, before further flight you must replace the lower spar caps, splice blocks, and wing attach angles (P/N 20693-1), and associated hardware. No additional time will be authorized for airplanes that are at or over 8,000 hours TIS (see Step 9).

8. (Optional): If you decide to cold work your bolt holes following Snow Engineering Service Letter 233 or 234, both dated May 18, 2002, at a TIS that does not coincide with a scheduled inspection following this AD, then eddy-current inspect at the time of cold working and then begin the 1,600/1,200 hour TIS inspection intervals (2 times the intervals listed in Steps 2.a., 2.b., and 6.a. listed above).

9. (Optional): If you have modified your airplane in accordance with Step 4 above before accumulating 4,000 hours TIS, then you may continue to fly your airplane past (modification + 4,000 hours TIS) provided you cut your inspection intervals in half. Make a logbook entry following Step 6.c. above to reflect these reduced inspection intervals. Upon accumulating 8,000 hours TIS, you must comply with Step 7 above.

Example: An AT-502B airplane had the two-part modification installed at 3,000 hours TIS and the bolt holes have not been cold worked.

The first inspection would occur at 4,600 hours TIS. From Step 5, this is modification plus 1,600 hours TIS.

Example (continued): Inspections would follow at 5,400 hours TIS, 6,200 hours TIS, and 7,000 hours TIS. From Step 6.a. above, this is 800-hour TIS inspection intervals.

Regarding the inspection at 7,000 hours TIS (modification plus 4,000 hours TIS), this relates to the 8,000-hour TIS inspection from Step 7 above, which is modification plus 4,000 hours TIS, except in this example the modification took place at 3,000 hours TIS instead of 4,000 hours TIS as specified in Step 4 above.

This airplane may continue to fly if inspected again at 7,400 hours TIS and 7,800 hours TIS, which is 400-hour TIS inspection intervals. This 400-hour TIS inspection interval corresponds to Step 9 where you cut your inspection interval from Step 6.a. in half.

Upon accumulating 8,000 hours TIS (this is the same as Step 7 above), you must replace the parts listed in Step 7.

For airplanes that have or have had Marburger Enterprise, Inc. winglets installed following Supplemental Type Certificate (STC) SA00490LA:

If you *have* removed the winglets, calculate new, reduced hours for Steps 1, 4, 5, and 7, as applicable, based on the winglet usage factor listed in Table 2 of paragraph (c)(4) and Appendix 2 of this AD.

You may repetitively inspect at the same intervals listed in Step 2 above provided that you do not re-install the winglets.

Example: An AT-502 airplane, S/N 502-0200, had winglets installed at 200 hours TIS and removed at 800 hours TIS.

The winglet usage factor is: 1.6

Calculate equivalent hours: 600 hours TIS with winglets x 1.6 = 960 hours TIS

Winglet usage penalty = 960 - 600 = 360

New Step 1 Pre-Modification Initial Inspection Time = 1,600 - 360 = 1,240 hours TIS

Retained Step 2 Pre-Modification Inspection Interval: Since the winglets are removed, the Pre-Modification Inspection Interval remains 800 hours TIS

New Step 4 Modification time = 4,000 - 360 = 3,640 hours TIS

New Step 5 Post-Modification Initial Inspection time = 3,640 + 1,600 = 5,240 hours TIS

Retained Step 6 Post-Modification Inspection interval: Since the winglets are removed the Post-Modification Inspection interval remains at 800/1,600 hours TIS.

New Step 7 replacement time = 8,000 - 360 = 7,640 hours TIS

Use the Retained Step 2 interval, the New Step 5 time, and the Retained Step 6 interval to make appropriate logbook entries for the pre- and post-modification intervals, using the format presented in Steps 2.d., 4.c., and 6.c.

If you *have not* removed the winglets, then calculate new, reduced hours for Steps 1, 2, 4, 5, 6, and 7 above, as applicable, based on the winglet usage factor listed in Table 2 of paragraph (c)(4) of this AD and Appendix 2 of this AD.

Repetitively inspect at the appropriate interval listed in the step above divided by the winglet usage factor.

Example: An AT-502B, S/N 502B-0550, that has not had P/N 20998-1/-2 web plate installed and has had winglets on since new.

The winglet usage factor is: 1.2

New Step 1 Pre-modification initial inspection time: 1,600 / 1.2 = 1,333 hours TIS

New Step 2 Pre-modification inspection interval: 600 / 1.2 = 500 hours TIS

New Step 4 Modification time: 4,000 / 1.2 = 3,333 hours TIS

New Step 5 Post-modification initial inspection time: 3,333 + 1,333 (1,600 / 1.2) = 4,666 hours TIS

New Step 6 Post-modification inspection interval: 800 / 1.2 = 667 hours TIS

New Step 7 Replacement time: 8,000 / 1.2 = 6,667 hours TIS

Use the reduced hours you calculate in New Step 2, New Step 5, and New Step 6 to make appropriate logbook entries for the pre- and post-modification inspection intervals, using the format presented in Steps 2.d., 4.c., and 6.c. above.

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